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Some helminthes of the Great Egret (Egretta alba) in Saudi Arabia

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Examination of the alimentary tracts of 9 Great Egret (*Egretta alba*) found freshly died in their inland places around Al-Qassim area during migration season in September and October revealed infection by 6 species of helminths. The extracted parasites were include two cestode worms, three nematodes and one acanthocephala. They were identified as *Uniciuna species, Choano-taenia, Subulura species*, *Contrac-aecum species*, *Syphacia species* and *Polymorphus species*. None of any examined carcass appears free from infection. The rate of distribution of the parasite in the examined birds was varied between 66.6%, 11.1%, 44.4%, 44.4%, 66.6% and 2.2 % for the previous parasites respectively. The rate of Parasite burden for each species was moderate to low, as it was 3.4, 2.0, 2.65, 3.25, 5.16 and 4.5 from the previous parasites respectively. None of these parasites was published previously in Saudi Arabia as infect this type of Egret. Their morphological characters and their distribution were described in detail.

Great white Egret (Egretta alba), as described by Silsby, (1980), is a pure giant heron, very large in size, its body length reached to 88cm (from head to tail). The legs and feet are black the color of the belly is variable, it can be yellow or black also it may be yellow at the base and black at the tip. This species has no crest. It inhibits costal or inland water. It is a migratory bird visit Saudi Arabia during September to October then again during March to April where its migrant route from north east to south west of Saudi Arabia.

Parasites infect this type of migratory birds allover the world still under investigation from the aspect of their role in transmitting some new parasites to the land they dropped periodically on or even the effect of these parasites on the survivals of this type of large migratory birds. In some related works, Sepulveda *et al.* (1999), investigate another species of great egret, (*Aredea albus*) and they recorded 39 species of helminthes during 10 years work in different localities of Florida, USA. These helminthes include 21 tremaodes, 12 nematodes, 2 acanthocephalans and 4 cestodes. They mentioned that 28 species of these helminthes considered as new host records. In this respect, Iwaki and Masuda, (1998) recorded 2 nematode species (*Desportesius equispiculatus* and *Contracaecum microcephalum*) from little egret in Japan (one bird). They added that this was the first record of these parasites in Japan.

The role of migrating birds, as a source of parasitic disease to Al-Qassim provinces, is the main target of this paper. For this reason, the places in which these birds usually landed around Al-Qassim area were kept under weekly observation aiming to collection of the available fresh fecal samples as well as any died carcasses.

Materials and Methods

Sample collection. Sample collection was performed during weekly visit to the common places attended by different migratory birds around Al-Qassim area, along the foreign birds migration season, (end of February to beginning of May 2004). Carcasses of nine freshly dead birds were collected. They were transferred to Deptartmetn of Veterinary Medicine, College of Agriculture and Veterinary Medicine, Al-Qassim university, KSA, for examination. They were identified as *Egretta alba* according to the description of Silsby, (1980).

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They eviscerated and examined according the techniques described by Kinsella and Forrester, (1972), for necropsy of birds, collection, and fixation as well as staining of helminthes.

Identification of the collected cestodes was done according to the keys of identification described by (Yamaguti, 1959; Schmidt, 1986), and Nematoda, were identified as described by (Chabaud, *et al.,* 1975) while *Acanthocephala* species was identified according to (Yamaguti, 1963; Soulsby, 1984).

The intensity of infection was calculated as the result of subdivision to the total number of parasite collected (for each species separately) on the number of infected birds. Also rate of distribution of special parasite among the examined group was calculated by dividing the number of birds infected by this parasite on the number of examined birds X 100.

Results and Discussion

Parasitic fauna of migratory birds still not completely identified, whereas types in the current study were differernt according to the type of migratory bird in each locality, the period of landing in each area which is usually short and finally there is lows prevent catching of these migratory birds.

In the present study, examination of the alimentary tract of 9 Great Egret carcasses found died in their inland places around Al-Qassim area revealed that their is no clear cause for their death except in one bird appeared died as a result of gun shot. In the same time all of them was suffering from one to 5 types of parasite, include two *Cestoda* species identified as *Uniciuna* and *Choanotaenia*, three *Nematoda* species identified as *Subulura*, *Contracaecum* and *Syphacia species* as well as one species of *Acanthocephala* identified as *Polymorphus* species extracted during examination of their alimentary tracts.

The data revealed that infection by the small cestodes (Unicina) and nematode (*Syphacia* species) was the most predominant type of infection where 66.6% from these birds was harboring this parasite, this was followed by infection by *Subulura* and *Contracaecum* (44.4%). While infection by *Polymorphus species* and *Choan-taenia* species was recorded in 2 and one bird respectively.

In the same time the highest rate of parasite burden (intensity of infection) was recorded in case of infection by *Syphacia species* (5.16 worm / infected bird) while the lowest burden was recorded for infection by *Choantaenia* species (2 parasite / infected bird) (Table 1). These finding came in agreement with Franson and Custer, (1994), where they mentioned that great egrets had relatively low intensities of parasites and their presence was not associated with significant lesions.

Concerning the mature helminthes extracted from the alimentary tract of these birds, there are 6 types of helminthes could be extracted from them, non of these parasites were included in the detailed study done on similar type of Egret in the United State as mentioned by Sepulveda *et al.* (1999). These collected worms were identified as the following:

Tape worm infection. Two mature *Cestoda* species were extracted from the small intestine of 6 examined birds as:

***Unciunia* species.** It was the most common parasite recorded in the examined birds. They were present in 5 birds from the examined (9 birds) (66.6%). The extracted tape worm plate (1) has the main characteristic features described by Yamaguti (1959) and Schmidt (1986) for *U. trichocirrosa skrjabin* (1914) concerning to shape of the scolex, mature segment and the gravid segment as they are small size *Dilepidinae* with squarish mature segment contain numerous testes behind the small median or pre equatorial ovary. The vitelline gland is a compact mass behind it. The common genital pore is irregular alternative. The gravid segment is longer than broader, their uterus change into egg capsules each contains one egg. Their scolex contains 4 prominent cup shaped suckers. The species diagnosed in this work differ from the former one where its common genital pore is regularly alternative, so it must be follow another species. Also there is no previous record about infection of egret by *Uncinia* tape worm so this considered being new host record.

Choanotaenia species. Two worms were recorded in one bird contain scolex and mature segment only. The parasite has the characteristic features of *Choanotaenia* worms described by Soulsby, (1984) and Schmidt, (1986). The parasite was recorded to infect domestic and wild birds in general.

Round worms infection. Three species of *Nematodes* could be extracted from the alimentary tract of the examined birds, they identified:

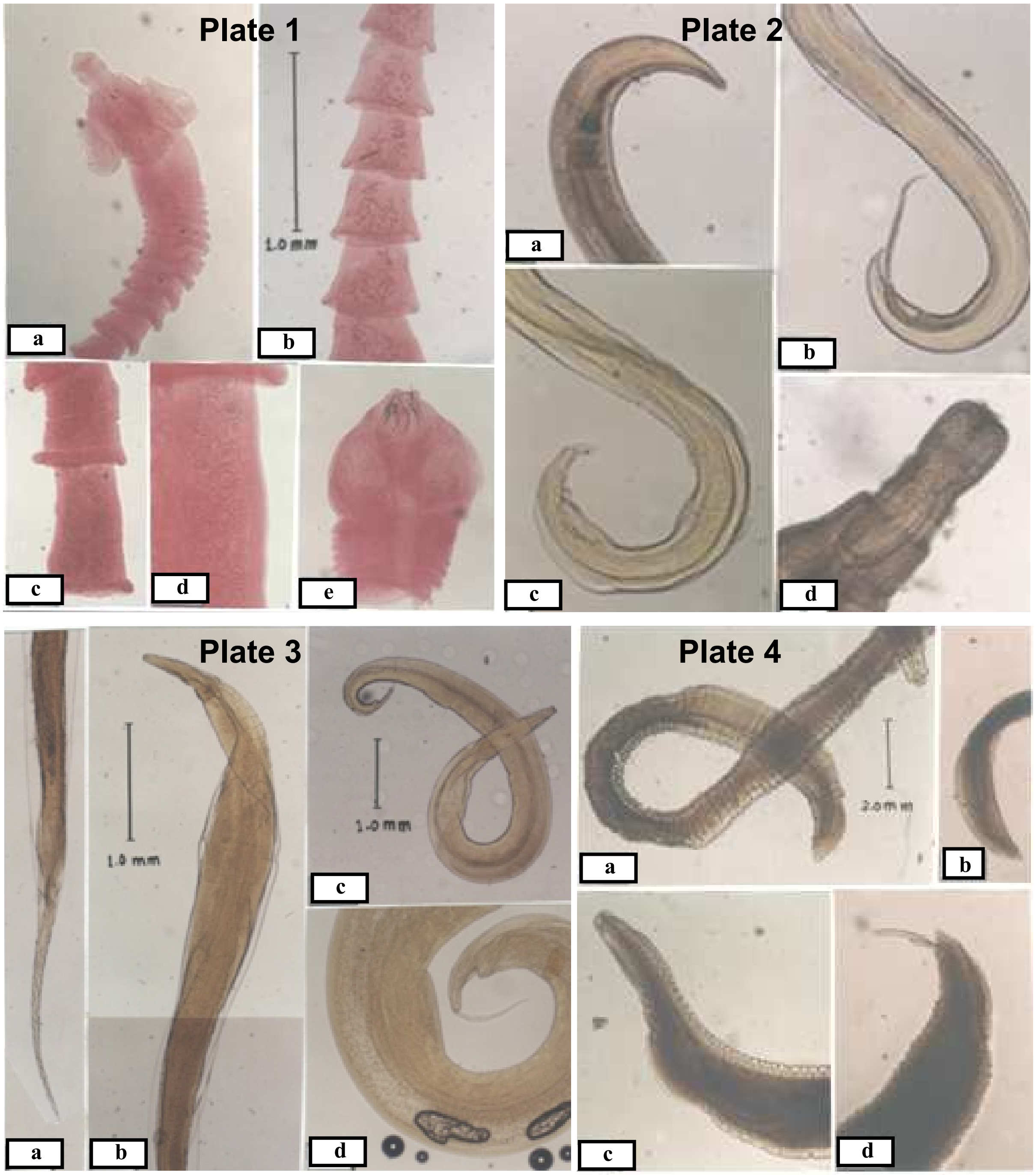


Plate 1: a. *Unciunia* species scolex. b. *Unciunia* species mature segment. c, d. *Unciunia* species gravid segment. e. *Choanotaenia* species scolex.
Plate 2: a. *Subulura* species anterior end. b, c. *Subulura* species male posterior end. d. *Polymorpus* species proboscis.
Plate 3: *Syphacia* species a,b. Female whole worm. c. Male whole worm. d. Male posterior end.
Plate 4: a. *Contracaecum* species whole worm b, d. *Contracaecum* species male posterior end. c. *Contracaecum* species anterior end.

Table (1): Parasites detected in examined birds.

Examined birds	Parasites collected from alimentary tract					
	Cestoda		***Nematoda***			***Acanthocephala***
	Uniciuna species	***Choano-taenia***	***Subulura species***	***Contrac-aecum species***	***Syphacia species***	***Acanthocephala magna***
Bird No. 1	2	-	2	5	6	-
Bird No. 2	-	2	-	-	-	4
Bird No. 3	-	-	2	2	5	-
Bird No. 4	4	-	3	-	4	-
Bird No. 5	2	-	-	3	3	-
Bird No. 6	5	-	4	-	-	-
Bird No. 7	4	-	-	-	7	-
Bird No. 8	-	-	-	3	6	-
Bird No. 9	-	-	-	-	-	5
Total	17	2	11	13	31	9
***Intensity of infection**	3.4	2	2.75	3.25	5.16	4.5
****Distribution of the parasite**	66.6%	11.1%	44.4%	44.4%	66.6%	22.2%

* Intensity of infection = Number of collected parasite / number of infected one
**Distribution of the parasite = number of birds infected by this parasite / number of examined birds X 100

***Subulura* species.** This worms were extracted from the hined end of large intestine of (44.4%) from the examined birds, they are similar to that previously described by Chabaud, *et al.* (1975) and Soulsby (1984), where they are (as in plate 2) medium to large nematodes (7-11 mm in male and 10-19 mm in female). Their esophagus has small swelling posteriorly followed by deep constriction and then spherical bulb. The posterior part of the male is curved ventrally, the pre-cloaca sucker is an elongated slit, surrounding by radiating muscle fibers. Their specules are equal and alated. They have 10 pairs of small caudal papillae. These warms were recorded previously to infect wild birds.

***Syphacia* species.** This was the most common parasite extracted from the examined birds (66.6%). This parasite was similar to that described by Chabaud, *et al.* (1975) and Soulsby, (1984) .The parasite is small in size, pin shape, has *Oxyurid oesophagus* characteristic by prebulbar swelling and a posterior globular bulb. The posterior part of the male is curved provided with characteristics one spicule, while that of the female is long pointed surrounded by large number of cuticular rings (plate 3). The most characterstic feature of the male according to Chabaud, *et al.* (1975) is the presence of 3 ventral cuticular swelling (see arrows in the plate).

The extracted species in this work was closely related to the previous morphological features but it differs in several aspects, it has prolonged allae start from the proximal part of the parasite till its tail as in the plate (3). The parasite extracted from the small intestine of the Egret not from the large intestine. The last difference is that this parasite not recorded previously in birds. Concerning this last point, this species of *Syphacia* may be a new species infect Great egret or may be these groups of Egret were fed on a big meal of wild rodents naturally infected by the parasite directly before death, where *Syphacia* is a parasite of small wild rodents. Specially all of the examine Egret in this work were collected dead.

***Contracaecum* species.** This parasite was extracted from the lumen of the proventriculus of 44.4% of the examined birds. The parasite has the characteristic features described by Yamaguti, (1959) and Soulsby, (1984) where it has some species *(C.microcephalum*) infect heron. It was large in size (male 35-48 mm and female is 26-67 mm). Thick cuticle, has oesophageal appendix and an anterior caecum. As in plate (4) and in agreement with description of Yamaguti, (1959) the anterior end has 3 lips narrow than the succeeding part of the body and the posterior end of male has two unequal specules.

***Acanthcephla* species.** A type *of Acanthcephla*,

identified according to Yamaguti, (1963) and Soulsby, (1984) as *Polymorphus* species was extracted from the small intestine of two birds (22.2%). Its proboscis was cleft anteriority has 16-22 row of longitudinal rows of hooks, 8-16 hook in each increased in size from the apex of the proboscis backwards but become smaller again toward the base with reduction of their root and neck distinct double-walled proboscis receptacle (Plate 2). Extraction of *Acanthocephala* from Egret came in agreement with that previously mentioned by Sepulveda *et al.* (1999), where they managed to extract two *Acanthocephalan* species from *Ardea albus* as *Polymorphus brives* and *Arhymorhynchus pumilirostris* from the small intestine in Florida USA. For conclusion and according to what described by Franson and Custer, (1994) about the ability of Great Egret to tolerate a low level of parasitic affection without disturbances to its migratory behaviour, this mean that this birds were able to survive and migrate freely spreading these parasite in each area it landed in so it play an important role in contamination of the culture by different forms of parasite which able to complete its cycle in the domesticated birds and animals in the places it landed in. So some measures of restriction around the places of its landing must be taken in consideration as a source of infection by new parasite to the locality.

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بعض الديدان التى تصيب طائر البشلون الأبيض العملاق في المملكة العربية السعودية

بفحص القناة الهضمية لـ ٩ طيور من طائر البشلون الأبيض العملاق وجدت نافقة حديثا في أماكن هبوطها بالمملكة حول منطقة القصيم خلال موسم الهجرة الخاص بها في شهري سبتمبر وأكتوبر ، وجد أنها مصابة بعدد ٦ أنواع مختلفة من الديدان المعوية ، نوعين منها تنتمي الي الديدان الشريطية و٣ أنواع تنتمي الي الديدان الأسطوانية ونوع واحد ينتمي الي الديدان شوكية الرأس. وقد صنفت هذه الأنواع علي أنها ينيسنيا ، كوانوتينيا ، سبلورا ، كونتراسيكم ، سيفاشيا وأخيرا بوليمورفس. وقد وجد أن جميع جثث الطيور التي تم فحصها كانت مصابة وأن معدل الأصابة بالديدان التي تم وصفها علي الترتيب كان ٦٦,٦ % ، ١١,١ % ، ٤٤,٤ % ، ٤٤,٤ % ، ٦٦,٦ % ثم ٢,٢ %. ولوحظ أيضا أن عدد الطفيليات في كل طائر كان ٣,٤ ، ٢ ، ٢,٦٥ ، ٣,٢٥ ، ٥,١٦ ، ٤,٥ علي الترتيب ، وقد تم توصيف هذه الطفيليات في البحث. وجدير بالذكر أن كل هذه الطفيليات في هذا النوع من الطيور تم اكتشافها للمرة الأولي في المملكة العربية السعودية.